

AMENDMENTS TO THE DRAWINGS:

The Patent Office is requested to review and approve the addition of FIG. 9 to the drawings in order to conform the drawings to the specification and claims. Attached hereto is a complete set of drawings with FIG. 9 labeled "New Sheet." FIG. 9 merely conforms the drawings to the features of claim 5 as originally filed. In particular, FIG. 9 depicts "the first surface 12 with a first groove 14 and third surface 27 having a second groove 28." No new matter is contained in FIG. 9 for at least the following reasons.

Disclosure support for the addition of FIG. 9 is inherent in the specification, for example, in paragraph 39 on page 9, which discloses that "FIG. 6 is only one illustration of a three plate embodiment; other embodiments utilizing three or more plates is contemplated by the present invention. Many different configurations of plates and channel placements are possible to achieve the desired combination of channel length and diameter necessary for effective focusing." The specification states in paragraph 43 on page 10 that "modifications and variations can be made in light of the above teaching. It is therefore to be understood that changes may be made in the particular embodiment of the invention disclosed which are within the scope of the invention."

The specification, in paragraph 39 on page 9, discussing the three-plate device of FIG. 6, discloses that different configurations are possible to achieve the desired diameter necessary for effective focusing. The specification, in paragraph 27 on page 7, in fact discusses, with respect to FIG. 5, that grooves 14 and 24 may be paired to make a larger diameter channel and that grooves 16 and 26 may be paired to make a larger diameter channel.

Since claim 5 as originally filed specifies "the first surface [12] with a first groove [14] and third surface [27] having a second groove [28]" (see FIG. 9), an embodiment "utilizing three or more plates [that] is contemplated by the present invention" (see specification paragraph 39 on page 9) and achieving larger diameter channels certainly includes pairing grooves 14 and 24 and pairing grooves 28 and 34, as inherently disclosed in the specification and depicted in FIG. 9.

REMARKS

Claims 1–30 are pending. Claims 1–4 and 6–20 stand rejected, and claim 5 stands objected to. By this Amendment, claims 1–5 and 9–20 are amended, and claims 21–30 are added.

Paragraphs 24, 25, 27, 30–31 and 40 are amended to corrected minor and grammatical errors. For example, in the second sentence of paragraph 25, “an/or coolant” is added to conform to the preceding sentence. At least one path represents a sample path. The second path can be used for a coolant such as a cryogen or cooled gas. In the case where the second path represents a second isolated sample path, then cooling of the device might be affected by using a Peltier device in contact with the device as in FIG. 1, or through alternative means. In paragraph 30, the use of compressed blown air through coolant channels is described, where the effectiveness is greatest where the GC oven temperature is greater than 150 degrees centigrade greater than the air. In paragraph 40, the disclosure of the use of slots (FIG. 7) that extend through the middle plate to make the pathway inherently creates a larger, not longer, pathway.

Claims 21 and 23, dependent on claim 2, are added to specify a three-plate device where the channels are formed in various surfaces of the plates before bonding. Claims 22 and 24, dependent on claim 3, are added to specify a three-plate device where the channels are formed in various surfaces of the plates before bonding.

In paragraph 1, the Office Action objects to the drawings because reference numeral 21 is not described in the specification. By this Amendment, the specification is amended to obviate this objection.

Reference numeral 21, associated with second plate 20, appears in each of FIGS. 2–6. Similarly, side 11, associated with first plate 10, also appears in FIGS. 2–6 and is described in the specification, for example, in paragraph 25 on page 6. Similarly, in the three-plate device depicted in FIG. 6, side 31, associated with plate 30, is described in the specification, for example, in paragraph 38 on page 9. Paragraph 25 on page 6 has been amended to describe side 21 of plate 20. This added description does not constitute new matter at least because (1) FIGS. 2–6 depict numeral 21 as a side of plate 20 and amendment of paragraph 25 merely conforms paragraph 25 to the drawings, (2) FIGS. 2–6 depict numeral 21 at the same location on plate 20 as side 11 is depicted on plate 10 in FIGS. 2–6, (3) paragraph 25 on page 6 of the specification already describes numeral 11 as side 11 of plate 10, (4) FIG. 6 depicts numeral 21 at the same location on plate 20 as side 31 is depicted on plate 30 in FIG. 6, and (5) paragraph 38 on page 9 of the specification already describes numeral 31 as side 31 of plate 30. Thus, numeral 21 is inherently disclosed to be side 21 on plate 20.

In paragraph 2, the Office Action objects to the drawings for not depicting “the first surface having a third groove.” This objection is respectfully traversed. In FIG. 5, first surface 12 has third groove 16 as described in paragraph 27 on page 7.

In paragraph 3, the Office Action objects to the drawings for not depicting “the first surface with a first groove and third surface having a second groove.”

The Office is requested to review and approve the addition of FIG. 9 to the drawings in order to conform the drawings to the specification and claims. No new matter is contained in FIG. 9 for at least the following reasons.

It initially noted that FIG. 9 merely conforms the drawings to the features of claim 5 as originally filed. In particular, FIG. 9 depicts “the first surface 12 with a first groove 14 and third surface 27 having a second groove 28.”

Disclosure support for the addition of FIG. 9 is found in the specification, in paragraph 39 on page 9, which discloses that “FIG. 6 is only one illustration of a three plate embodiment; other embodiments utilizing three or more plates is contemplated by the present invention. Many different configurations of plates and channel placements are possible to achieve the desired combination of channel length and diameter necessary for effective focusing.” The specification states in paragraph 43 on page 10 that “modifications and variations can be made in light of the above teaching. It is therefore to be understood that changes may be made in the particular embodiment of the invention disclosed which are within the scope of the invention.”

The specification, in paragraph 39 on page 9, discussing the three-plate device of FIG. 6, discloses that different configurations are possible to achieve the desired diameter necessary for effective focusing. The specification, in paragraph 27 on page 7, in fact discusses, with respect to FIG. 5, that grooves 14 and 24 may be paired to make a larger diameter channel and that grooves 16 and 26 may be paired to make a larger diameter channel.

Since, claim 5 as originally filed, specifies “the first surface 12 with a first groove 14 and third surface 27 having a second groove 28” (see FIG. 9), an embodiment “utilizing three or more plates [that] is contemplated by the present invention” (specification paragraph 39 on page 9) and achieving larger diameter channels certainly includes pairing grooves 14 and 24 and pairing grooves 28 and 34, as depicted in FIG. 9.

In paragraph 4, the Office Action objects to claim 5, and requests that “with the first groove etched therein” be deleted. This objection is respectfully traversed as unwarranted by claim 5 as originally filed. However, amended claim 5 now specifies a first groove formed in the second surface (part of the second plate) where before, claim 5 specified a different invention where the first groove was formed in the first surface (part of the first plate). Therefore, by this Amendment, claim 5 is presented in independent form and in which “with the first groove etched therein” has been deleted.

In paragraph 5, the Office Action objects to claim 18, and requires that “a third surface that is bonded to a fourth surface” in line 6 be changed to “first surface that is bonded to the second surface.” This requirement is respectfully traversed.

Initially, please note that the limitation, “first surface that is bonded to the second surface,” is already specified in line 3 of claim 18. Then note that “a third plate 30 having a third surface 32 that is bonded to a fourth surface 27 of the second plate 20,” as specified in claim 18, is depicted in FIG. 9. The recital of third and fourth surfaces conforms with all Patent Office rules, and the specification of “a third plate having a third surface that is bonded to a fourth surface of the second plate” in claim 18 is a limitation that has preclusive effect. Accordingly, the objection to claim 18 is respectfully traversed.

In paragraph 6, the Office Action objects to claim 19, and requires that “1” in line 1 be changed to “18.” By this Amendment, “1” in line 1 has been changed to “18.”

In paragraph 8, the Office Action rejects claims 1–4, 9–15 and 18–19 under 35 U.S.C. § 102(b) as being anticipated by Kaltenbach et al. (2001/008613), hereinafter, Kaltenbach ‘613. If applicable to present claims 1–4, 9–15 and 18–19, this rejection is respectfully traversed.

Anticipation under 35 U.S.C. § 102 is a strict standard. “A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference.” Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claim.” Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Kaltenbach ‘613 does not disclose “a thermal focusing device” that includes a “temperature reduction means [that] cools a first channel of the at least one channel so as to trap a gas sample within the first channel, the temperature reduction means being in thermal contact with at least one plate,” as specified in claim 1, and therefore contained in all claims dependent thereon. Furthermore, Kaltenbach ‘613 does not disclose “a thermal focusing device” that includes a “means for cooling at least one of said plates to trap a gas sample in the first channel,” as specified in claim 18, and therefore contained in all claims dependent thereon.

First, there is a difference between “trapping” a sample and chromatography “separation” of a sample. Claims 1 and 18 specify “trapping.” Kaltenbach ‘613 discloses only separating. Trapping involves adsorption, absorption and/or condensation of the entire sample to stop sample flow through the device. Chromatography separation involves the differential adsorption or absorption of the many components of a sample to differentially retard the flow of the sample as a media drags the sample through the chromatography column. Furthermore, the present specification teaches this difference (see the specification in general, e.g., paragraphs 5–7). Kaltenbach ‘613 does not disclose trapping as specified in present claims 1 and 18, and therefore contained in all claims dependent thereon.

Second, there is a difference between gas samples as specified in present claims 1 and 18 and liquid samples as processed by Kaltenbach '613 through a chromatography column. Kaltenbach '613 does not disclose trapping a gas sample as specified in present claims 1 and 18, and therefore contained in all claims dependent thereon.

In paragraph 9, the Office Action rejects claims 1–4, 9–15 and 18–19 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,759,013 to Kaltenbach et al., hereinafter Kaltenbach '013. Anticipation under 35 U.S.C. § 102 is a strict standard as discussed above in the response to Office Action paragraph 8. If applicable to present claims 1–4, 9–15 and 18–19, this rejection is respectfully traversed.

Kaltenbach '013 does not disclose “a thermal focusing device” that includes a “temperature reduction means [that] cools a first channel of the at least one channel so as to trap a gas sample within the first channel, the temperature reduction means being in thermal contact with at least one plate,” as specified in claim 1, and therefore contained in all claims dependent thereon. Furthermore, Kaltenbach '613 does not disclose “a thermal focusing device” that includes a “means for cooling at least one of said plates to trap a gas sample in the first channel,” as specified in claim 18, and therefore contained in all claims dependent thereon.

First, there is a difference between “trapping” a sample and chromatography “separation” of a sample. Claims 1 and 18 specify “trapping.” Kaltenbach '013 discloses only separating. Trapping involves adsorption, absorption and/or condensation of the entire sample to stop sample flow through the device. Chromatography separation involves the differential adsorption or absorption of the many components of a sample to differentially retard the flow of the individual sample components as a media drags the sample through the chromatography column. Furthermore, the present specification teaches this difference (see

the specification in general, e.g., paragraphs 5–7). Kaltenbach ‘013 does not disclose trapping as specified in present claims 1 and 18, and therefore contained in all claims dependent thereon.

Second, there is a difference between gas samples as specified in present claims 1 and 18 and liquid samples as processed by Kaltenbach ‘013 through a chromatography column. Kaltenbach ‘013 does not disclose trapping a gas sample as specified in present claims 1 and 18, and therefore contained in all claims dependent thereon.

In paragraph 11, the Office Action rejects claim 7 under 35 U.S.C. § 103(a) as being unpatentable over either Kaltenbach ‘613 or Kaltenbach ‘013 in view of U.S. Patent No. 4,935,040 to Goedert. If applicable to present claim 7, this rejection is respectfully traversed.

Kaltenbach ‘613 or Kaltenbach ‘013 in view of Goedert does not disclose, teach or suggest a “thermal focusing device” that includes a “temperature reduction means [that] cools a first channel of the at least one channel so as to trap a gas sample within the first channel,” as specified in claim 1, and therefore contained in all claims dependent on claim 1, as discussed above with respect to the rejection of claim 1. Goedert addresses chromatography separation problems and does not deal with trapping a sample. Since claim 7 is dependent on claim 1, claim 7 specifies this feature that is absent from Kaltenbach ‘613 or Kaltenbach ‘013 in view of Goedert. Accordingly, withdrawal of the rejection of claim 7 is earnestly solicited.

In paragraph 12, the Office Action rejects claims 6–8 and 20 under 35 U.S.C. § 103(a) as being unpatentable over either Kaltenbach ‘613 or Kaltenbach ‘013 in view of Hobbs et al. (2002/0187557), hereinafter Hobbs. If applicable to present claims 6–8 and 20, this rejection is respectfully traversed.

Kaltenbach '613 or Kaltenbach '013 in view of Hobbs does not disclose, teach or suggest a "thermal focusing device" that includes a "temperature reduction means [that] cools a first channel of the at least one channel so as to trap a gas sample within the first channel," as specified in claim 1, and therefore contained in all claims dependent on claim 1, as discussed above with respect to the rejection of claim 1. Furthermore, Kaltenbach '613 or Kaltenbach '013 in view of Hobbs does not disclose, teach or suggest a "thermal focusing device" that includes a "means for cooling at least one of said plates to trap a gas sample in the first channel," as specified in claim 18, and therefore contained in all claims dependent on claim 18, as discussed above with respect to the rejection of claim 18. Hobbs addresses chromatography separation problems and does not deal with trapping a gas sample. Since claims 6–8 are dependent on claim 1 and since claim 20 is dependent on claim 18, claims 6–8 and 20 specify this feature that is absent from Kaltenbach '613 or Kaltenbach '013 in view of Hobbs. Accordingly, withdrawal of the rejection of claims 6–8 and 20 is earnestly solicited.

In paragraph 13, the Office Action rejects claims 16–17 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,997,708 to Craig in view of either Kaltenbach '613 or Kaltenbach '013. If applicable to present claims 16–17, this rejection is respectfully traversed.

Craig in view of either Kaltenbach '013 or Kaltenbach '613 does not disclose teach or suggest a "thermal focusing device" that includes "a middle plate ... with material completely removed between the first and second surfaces of the middle plate to form a continuous pathway with a beginning and an end" as specified in claims 16 and 17. In contrast, Craig shows in FIGS. 6A and 6B a middle plate 288B having first and second surfaces 256', 258', with groove 260' etched in first surface 256' and groove 262' etched in second surface 258'. The material is not completely removed between the two surfaces to form a pathway.

CONCLUSION

In view of the present amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Prompt consideration and allowance of the application are earnestly solicited. Should the examiner believe that any further action is necessary to place the application in condition for allowance, he is invited to contact the undersigned applicant representative at the telephone number listed below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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